INSTRUCTION MANUAL

MODEL 600 TYPE 2

TRANSISTORIZED VOLT-OHMMETER

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THE TRIPLETT ELECTRICAL INSTRUMENT CO.
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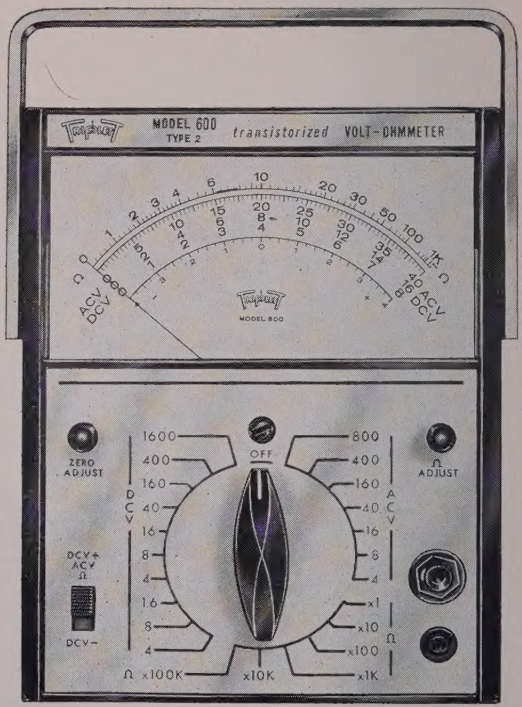


Model 600 TVO

TECHNICAL DATA

POWER

Self-contained battery supply

RANGES

DC Volts 0-.4-.8-1.6-4-8-16-40-160-400-1600
AC Volts 0-4-8-16-40-160-400-800
Ohms 0-1,000-10,000-100,000-1 Meg.-10 Meg.-100 Meg.
Center Scale Value 10 Ohms at X1 Range

FREQUENCY RANGE

15 cps to 2 MC

INPUT IMPEDANCE

DC Volts 2.75 Meg. at .4 Volts; 5.5 Meg. at .8 Volts; 11 Meg. Remainder
AC Volts Minimum of .75 Megohms

OHMMETER SPECIFICATIONS

	Range					
	X1	X10	X100	X1K	X10K	X100K
Maximum Voltage—Volts	1.5	1.5	1.5	1.5	1.47	1.06
Maximum Current—ma.	185	16	1.5	.15	.015	.0011
Maximum Power—mw.	70	6	.57	.057	.0054	.0003

METER

DC current for full scale deflection 50 ua
5 inch type with 4 1/8 inch scale length
DC-AC Volts scale black on white
Ohms scale red on white
Zero center scale black on white

ACCURACY

AC ±3%, calibrated on 60 cycle sine wave
DC ±3%, calibrated at 77° F

CONSTRUCTION

Insulated black case; outside dimensions 3 3/16" x 5 1/8" x 6 1/2" with metal handle that can be used to place instrument on approximately 25° angle. Etched aluminum panel.

WEIGHT

Approximately 2 1/2 pounds

ACCESSORIES supplied with Model 600

1 DC/AC-OHMS probe and cable
1 Chassis ground lead
3 1.5-volt batteries (1 size D, 2 size AA); 1 9-volt transistor battery
2 Alligator clips
1 Instruction book

ACCESSORIES AVAILABLE

Leather carrying case Model 639-OS
High voltage probe (for adjusting critical high voltage on color TV sets) — Part No. 79-265
R.F. probe — Part No. 79-264

GENERAL DESCRIPTION

The Transistorized Volt-Ohmmeter (TVO) is one of the most useful instruments in the electronic field, both in the laboratory and for service. Its high input impedance and wide frequency ranges give it considerable advantage over other types of voltmeters. The Triplett Model 600 combines the advantages of a vacuum tube voltmeter with the portability of the VOM. The versatility of the Model 600 is greatly increased by the skill of the operator.

The Model 600 is a Transistorized Volt-Ohmmeter designed to measure DC voltages, resistance and AC RMS values. By adding color to the various ranges and combining the DC and AC voltage readings the meter dial has been simplified and made easier to read. Your Model 600 is designed with a number of features to protect the highly sensitive meter.

The meter controls are clearly marked on an etched aluminum panel. All measurements are made on a five-inch meter with a single switch knob controlling all ranges and functions.

One probe is used for all functions: DC, AC and OHMS. The small, compact probe has a built-in sliding switch which places a 690 K ohm resistor in series with the instrument on DC voltage readings. The Model 600 is frequency compensated up to 2 megacycles. The solid-state circuit design requires no warm-up period and readings may be made immediately.

To insure longest battery life, be sure the selector switch is placed in the off position when the meter is not in use.

PRELIMINARY ADJUSTMENTS

The following procedure and adjustments should be made before using your Model 600. In following this procedure, you will familiarize yourself with this tester and at the same time, increase the efficiency and your use of it.

Installing Batteries

1. Unscrew the large nut in the rear of the case and pull the tester out of the case.
2. Install the batteries (Eveready #216 in compartment with three contacts; two Eveready #915 in compartment with four contacts; and Eveready #950 in compartment with two contacts). Observe the polarity marking so that the battery + is on the same side as the + in each battery compartment.

Zeroing the Meter (Mechanical)

This is the mechanical adjustment of the meter and is to be done with the selector switch knob in the "OFF" position.

1. Place tester in position to be operated.
2. Adjust the meter adjustment screw for exact zero meter indication. The meter zero adjust screw is located directly above the "OFF" reading. Please note, if the meter pointer already reads at zero, no adjustment is necessary.

DC/AC Zero Adjustment

1. Connect probe cable and ground lead to front panel connectors, and place probe switch in DC position; connect the probe tip and ground lead together, this grounds the input of the TVO.
2. Place slide switch in +DCV position.
3. Index the range switch to desired Volt position.
4. Adjust the front panel Zero Adjust (control above slide switch) until the meter is indicating exactly zero.
5. Push the slide switch to —DC Volts position. The meter reading should remain at zero. Return to +DC Volt position for normal readings.

DC Voltage Measurements

The probe switch should be in the DC position for all DC voltage measurements.

The probe is positive when the slide switch is in the +DC Volts position and negative when in the —DC Volts position.

1. Set the slide switch to desired function: +DC Volts or —DC Volts.
2. Adjust the zero control to position the meter pointer at the left hand "0" as outlined in Preliminary Adjustments.
3. Select a higher voltage range than the voltage to be measured.
4. Connect the ground clip to ground (or the lowest potential of circuit under test).
5. Connect the probe tip to the high side of the voltage to be measured.
6. Set the range switch to the position that gives a reading nearest full scale.
7. The DC voltage is then read on the scale corresponding to the range setting.

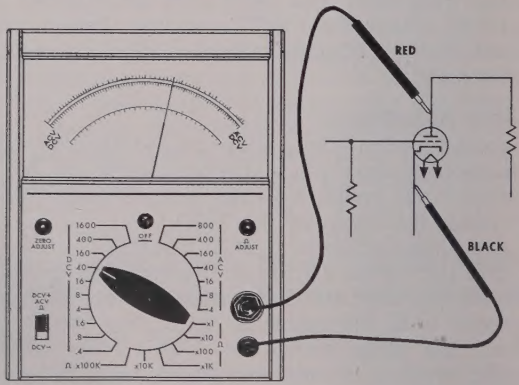


Fig. 1. Measuring DC Volts

AC Voltage Measurements

The probe switch should be in the AC/OHMS position for all AC voltage measurements. Values are read on the black scale.

1. Set the slide switch to ACV.
2. Adjust the zero control to position the meter pointer at the left hand "0" as outlined in Preliminary Adjustments.
3. Select a higher voltage range than the voltage to be measured.
4. Connect the ground clip to ground (or the lowest potential of circuit under test).
5. Connect the probe tip to the other side of the voltage.
6. Reset the range switch for a reading nearest full scale.
7. The AC voltage is then read on the scale corresponding to the range setting.

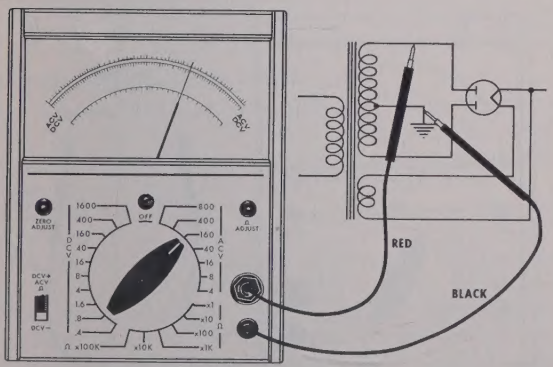


Fig. 2. Measuring AC Volts

Resistance Measurements

The probe switch should be in the AC/OHMS position for all resistance measurements. Power must be removed from equipment under test before resistance measurements are made.

1. Set slide switch to the OHMS position.
2. Adjust the zero control to position the meter pointer at the left hand "0" as outlined in Preliminary Adjustments.
3. Set range switch to the "X10Ω" position.
4. Separate the probe tip and the ground cable tip. Adjust the meter pointer to full scale with the OHMS control.
5. Connect the ground cable clip to one side of the resistance to be measured.
6. Connect the probe tip to the other side of the resistance to be measured.
7. Reset the range switch to give a convenient deflection on the OHMS scale.
8. Multiply the reading on the OHMS scale by the range switch setting.

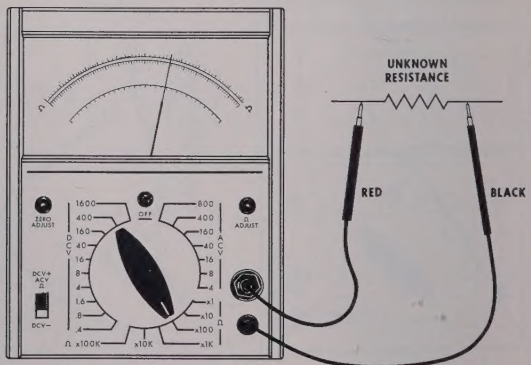
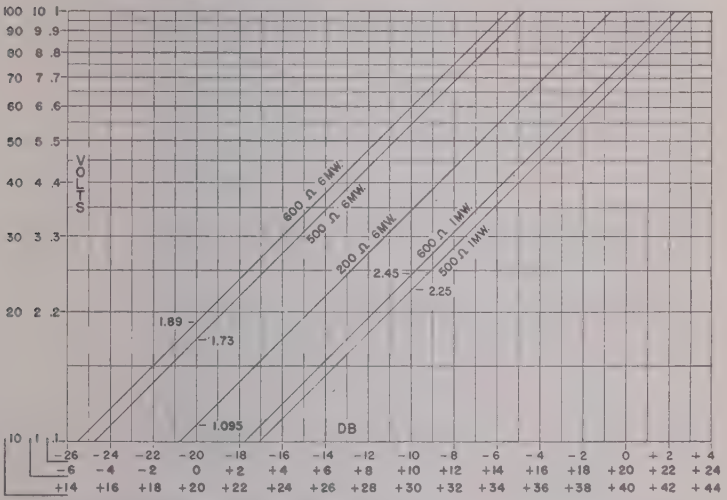


Fig. 3. Measuring DC Resistance

AF or Decibel Measurements

To measure decibels set the tester as above for AC Volts. Convert the readings to decibels with the aid of the chart shown below.

Conversion Chart: AC Volts RMS to Decibels



Galvanometer Zero Center Scale

Zero Center Scale is available for lining up the discriminator in FM circuits or for other Galvanometer readings.

To use the Zero Center Scale as a Galvanometer:

1. Set the slide switch to "+DC Volts".
2. Set the range selector to a position at least twice the voltage to be measured.
3. Adjust the ZERO control to position the pointer at the "—0+" which is at the bottom of the meter scale.
4. Full scale readings will be half the value of the range setting since "0" is the center of the meter.

Example: If range switch is on 4 DCV and "0" is in center of meter, the meter will read —2, 0, +2 Volts.

TO MEASURE	SET RANGE SWITCH AT	SET SLIDE SWITCH AT	PROBE SWITCH POSITION
DC VOLTS			
0-.4	.4 DCV	DCV +	DC
0-.8	.8 DCV	DCV +	DC
0-1.6	1.6 DCV	DCV +	DC
0-4	4 DCV	DCV +	DC
0-8	8 DCV	DCV +	DC
0-16	16 DCV	DCV +	DC
0-40	40 DCV	DCV +	DC
0-160	160 DCV	DCV +	DC
0-400	400 DCV	DCV +	DC
0-1600	1600 DCV	DCV +	DC
AC-RMS			
0-4	4 ACV	ACV	AC OHMS
0-8	8 ACV	ACV	AC OHMS
0-16	16 ACV	ACV	AC OHMS
0-40	40 ACV	ACV	AC OHMS
0-160	160 ACV	ACV	AC OHMS
0-400	400 ACV	ACV	AC OHMS
0-800	800 ACV	ACV	AC OHMS
OHMS			
0-1,000	X 1	OHMS	AC OHMS
0-10,000	X 10	OHMS	AC OHMS
0-100,000	X 100	OHMS	AC OHMS
0-1 Meg.	X 1K	OHMS	AC OHMS
0-10 Meg.	X 10K	OHMS	AC OHMS
0-100 Meg.	X 100K	OHMS	AC OHMS
DECIBELS			
See Chart	4 ACV	ACV	AC OHMS
—26 to +40	8 ACV	ACV	AC OHMS
	16 ACV	ACV	AC OHMS
	40 ACV	ACV	AC OHMS
	160 ACV	ACV	AC OHMS

CHART

READ ON SCALE	SCALE MULTIPLIER	REMARKS
BLACK SCALES		
0-40	÷ by 100	For Neg. Volts set slide sw. to DCV—.
0-8	÷ by 10	
0-16	÷ by 10	
0-40	÷ by 10	
0-8	Read Direct	See instructions for D.C. Measurements.
0-16	Read Direct	
0-40	Read Direct	
0-16	X 10	
0-40	X 10	
0-16	X 100	
BLACK SCALES		
0-40	÷ by 10	See instructions for A.C. Measurements.
0-8	Read Direct	
0-16	Read Direct	
0-40	Read Direct	
0-16	X 10	
0-40	X 10	
0-8	X 100	
RED SCALE		
0-1000 OHMS	Read Direct	See instructions for resistance measurements. Be sure probe switch is in OHM position.
0-1000 OHMS	X 10	
0-1000 OHMS	X 100	
0-1000 OHMS	X 1K	
0-1000 OHMS	X 10K	
0-1000 OHMS	X 100K	
BLACK SCALES		
0-40	÷ by 10	See instructions for Decibel measurements.
0-8	Read Direct	
0-16	Read Direct	
0-40	Read Direct	
0-16	X 10	

MAINTENANCE

Battery Check

The accuracy of your Model 600 will depend on the condition of the batteries. For best tester performance it is necessary that the batteries be checked periodically. To assure that batteries are within limits they should be checked as follows:

1. Set the slide switch to the OHMS position.
2. Adjust the zero control to position the meter pointer at the left hand zero as previously outlined under Preliminary Adjustment Instructions.
3. Set the range switch to the 100K OHMS position.
4. With the probe tip and the ground cable separated adjust the meter pointer to full scale with the OHMS control.
5. Connect the probe tip to the ground cable tip.
6. Set the probe switch to DCV.
7. Meter should read inside broad red band at "7" on OHMS scale.

If the meter reads outside the red band the batteries should be replaced. Battery replacements are Eveready #216, Eveready #915, and Eveready #950.

DC Voltage Calibration

1. Rotate the selector switch several times to improve switch contact particularly if the tester has not been used for some time. The slide switch should also be moved back and forth several times to improve contact.
2. Zero the mechanical meter zero, if necessary.
3. Set slide switch on +DC Volts position.
4. Zero the electrical zero, if necessary.
5. Set on .4 position.

6. Set the probe switch on DC position.
7. Connect the ground lead of the Model 600 to negative side of .4 Volt DC standard source. Connect positive side of source to probe tip.
8. Adjust the DC calibration potentiometer so the meter reads exactly .4 Volts full scale. The calibrating potentiometer is identified on the circuit board.
9. Check the remaining DC voltage ranges with a standard voltage source.

AC Voltage Calibration

1. Set the probe switch to AC/OHMS position.
2. Set slide switch on AC Volt position.
3. Set selector switch on 4 Volt range.
4. Apply 4 Volts 60 CPS to the probe tip and ground lead.
5. Adjust the AC calibration control so the meter reads exactly 4 Volts full scale. This control is identified on the circuit board.
6. Check the remaining AC voltage ranges with a standard voltage source.

Ohms Adjustment

1. Set slide switch to the ⊣DC Volts position and perform zero adjustment if necessary.
2. Set selector switch to Ohms range to be used.
3. Adjust front panel OHMS control for full scale.

Repair and Service

The Triplett company suggests when you send your tester in for repair or service you indicate the nature of service required. By supplying this information the Triplett Co. or our service stations can serve you better and you will receive your tester back in less time.

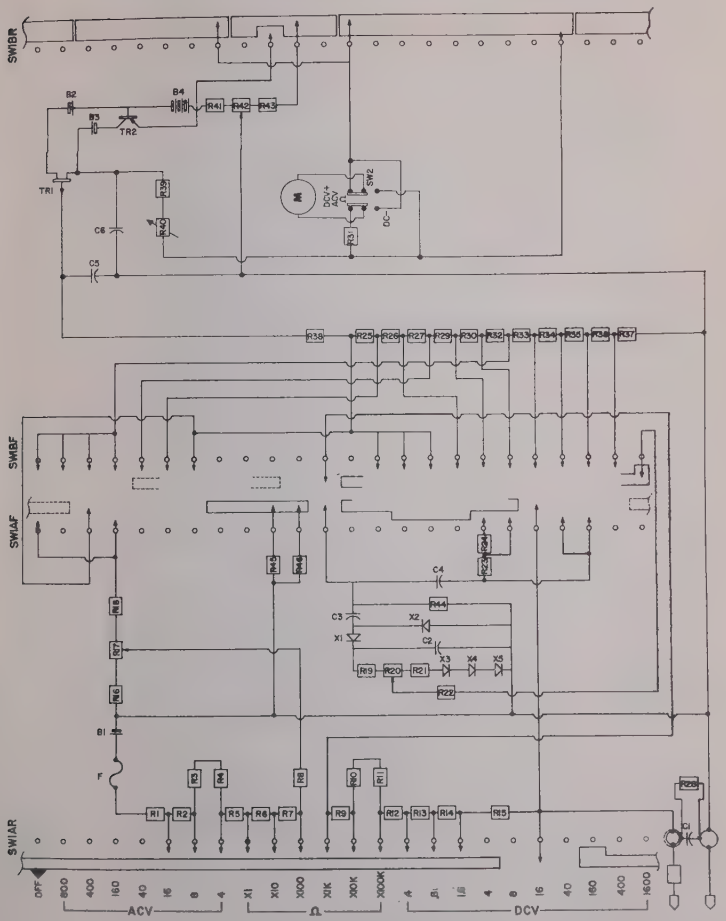
LEATHER CARRYING CASE

MODEL 639-OS

CASE 639-OS

Black leather case, has built-in stand on back. Flaps open to permit use of tester in case. Compartment for accessories. For use with 600 series testers. Felt lined, Leather strap handle.

MODEL 600 TYPE 2 SCHEMATIC DIAGRAM



REPLACEMENT PARTS FOR MODEL 600 TYPE 2

CKT. SYM.	REQ.	DESCRIPTION	PART NO.
		Lead Assem. 600 Ground	79A-261
		Lead Assem. 600 Probe	79B-258
B1	1	Battery, 1½ Volt "D"	2426-1
B2	1	Battery, 1½ Volt "AA"	2426-3
B3	1	Battery, 1½ Volt "AA"	2426-3
B4	1	Battery, 9V	37-36
	1	Battery Connector, 9V	92A-8
	1	Case, Complete W/Handle	10B-2293
M	1	Instrument Assembly	52A-3710
	1	Knob (Selector Switch)	34A-94
	1	Shaft Assembly (Switch)	3306A-5
	1	Washer	14-215
	2	Detent Ball	11935A
	1	Spring Detent	42B-242
	1	Retaining Ring	11966A
BD2	1	Circuit Board W/Resistors	87B-130
BD3	1	Circuit Board W/Switch & Resistors	87B-131
C1, C5, C6	3	Capacitor, 01MFD	43-198
C2, C3	2	Capacitor, .056MFD	43-259
C4	1	Capacitor, .25MFD	43-260
X1, X2, X3, X4, X5	5	Diode	127A-9
R1	1	Resistor, 8.1 Ohm	15-3108
R2	1	Resistor, 90 Ohm	15-4961
R3, R4	2	Resistor, 450 Ohm	15-4921
R5	1	Resistor, 9K Ohm	15-1371
R6	1	Resistor, 92K Ohm	15-4881
R7	1	Resistor, 1.32 Meg. Ohm	15-4895
R8	1	Resistor, 976K Ohm	15-4883
R9, R10, R11	3	Resistor, 2.75 Meg. Ohm	15-4908
R12	1	Resistor, 1.24 Meg. Ohm	15-4892
R13	1	Resistor, 415K Ohm	15-1228
R14	1	Resistor, 200K Ohm	15-1061
R15	1	Resistor, 150K Ohm	15-1763
R16	1	Resistor, 4.02 Meg. Ohm	15-4885
R17	1	Resistor, Variable, 2 Meg. Ohm	16-184
R18	1	Resistor, 2 Meg. Ohm	15-3390
R19, R21	2	Resistor, 5.49 Meg. Ohm	15-4886
R20	1	Resistor, Variable, 1 Meg. Ohm	16-173
R22	1	Resistor, 33.4 Meg. Ohm	15-4889

REPLACEMENT PARTS FOR MODEL 600 TYPE 2

CKT. SYM.	REQ.	DESCRIPTION	PART NO.
R23	1	Resistor, 900K Ohm	15-1974
R24	1	Resistor, 1 Meg. Ohm	15-1358
R25	1	Resistor, 1.05 Meg. Ohm	15-4875
R26	1	Resistor, 187K Ohm	15-4909
R27	1	Resistor, 324K Ohm	15-4757
R28	1	Resistor, 10 Meg. Ohm	15-4837
R29	1	Resistor, 90.9K Ohm	15-4758
R30	1	Resistor, 206K Ohm	15-4759
R31	1	Resistor, 100 Ohm	15-5007
R32	1	Resistor, 6.04K Ohm	15-4760
R33	1	Resistor, 118K Ohm	15-4761
R34	1	Resistor, 62.2K Ohm	15-4897
R35	1	Resistor, 12.3K Ohm	15-4316
R36	1	Resistor, 6.18K Ohm	15-4898
R37	1	Resistor, 2.05K Ohm	15-4899
R38	1	Resistor, 1 Meg. Ohm	15-1358
R39	1	Resistor, 3K Ohm	15-2852
R40	1	Resistor, Variable, 1K Ohm	16-183
*R41	1	Resistor, 91K Ohm	15-5008
*R41	1	Resistor, 30K Ohm	15-1115
*R41	1	Resistor, 62K Ohm	15-2624
R42	1	Resistor, Variable, 25K Ohm	16-187
*R43	1	Resistor, 30K Ohm	15-1115
*R43	1	Resistor, 62K Ohm	15-2624
R44	1	Resistor, 3.01 Meg. Ohm	15-4888
R45	1	Resistor, 150K Ohm	15-1763
R46	1	Resistor, 487K Ohm	15-4762
*TR1	1	Field Effect Transistor	127A-7

* **NOTE** — R41 and R43 must be matched to TR1. When ordering TR1 also order 1 each of R41 and R43 and the correct values will be supplied.

TR2	1	Transistor	127A-8
F	1	Fuse, ½ Amp.	3207-3
SW1A	1	Switch, Rotary (Deck 1)	22B-531
SW1B	1	Switch, Rotary (Deck 2)	22B-532
SW2	1	Switch, Slide	22A-152
	1	Label (Nameplate)	58A-327
	1	Panel, Etched Aluminum	28B-888
	2	Knobs, Red	34-74
	1	Jack, Shielded	11942A

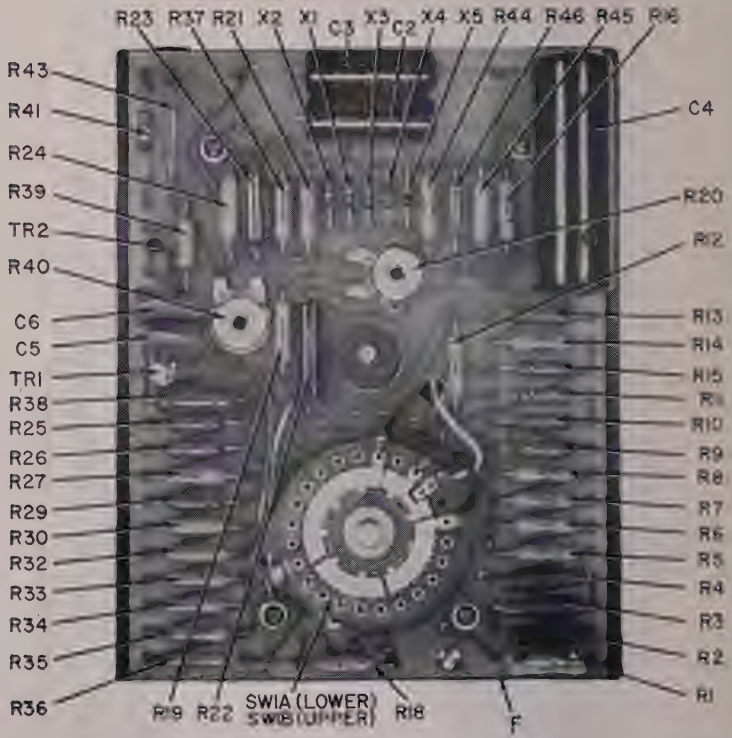


Fig. 4. Parts Location (Circuit Board)

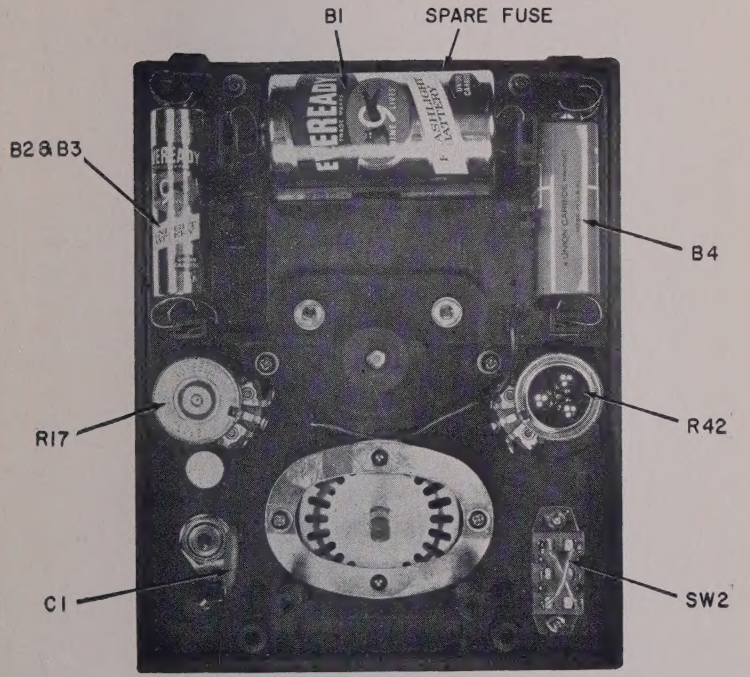


Fig. 5. Parts Location (Panel)

WARRANTY

The Triplett Electrical Instrument Company warrants instruments manufactured by it to be free from defective material or factory workmanship and agrees to repair or replace such instruments which under normal use and service, disclose the defect to be the fault of our manufacturing. Our obligation under this warranty is limited to repairing or replacing any instrument or test equipment which proves to be defective, when returned to us transportation prepaid, within ninety (90) days from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons or service stations in any way so as, in our judgment to injure their stability or reliability or which have been subject to misuse, negligence or accident or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products, which have been connected, installed, or adjusted otherwise than in accordance with the instructions furnished by us. Accessories including all vacuum tubes and batteries not of our manufacture used with this product are not covered by this warranty.

The Triplett Electrical Instrument Company reserves the right to discontinue models at any time, or change specifications, price or design, without notice and without incurring any obligation.

Upon acceptance of this material the purchaser agrees to assume all liability for any damages, and bodily injury which may result from the use or misuse of the material by the purchaser, his employees, or others and that The Triplett Electrical Instrument Company shall incur no liability for direct or consequential damage of any kind.

Parts will be made available for a maximum period of five (5) years after the manufacture of this equipment has been discontinued. Parts include all materials, charts, instructions, diagrams, accessories, et cetera, which were furnished in the standard or special models.

This warranty and conditions of sale are in lieu of all others expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

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